Accelerator Systems Division Highlights Ending May 6, 2005

Installation

Craft Snapshot 4/26/05

ASD productive craft workers	**54.0**
Foremen (Pd by 15% OH)	7.0
AMSI management (Pd directly)	3.0
TOTAL AMSI WORKERS	64.0
Less WBS 1.9, 1.2 etc	**8.0**
Less absent	**2.0**
TOTAL PD BY ASD/ORNL DB WPs	**44.0**

Accelerator Physics
Operations
Ion Source

Survey and Alignment

- Two Warm sections aligned (CM22&CM23).
- HEBT Collimators aligned.
- HEBT Collimator clamp bolt holes set out.
- Chicane #2 (DHA_13) Re-aligned (coordinate rotation).
- Chicane #2 (DHA_11) Aligned.
- Chicane #3 (DHA_12) Aligned.
- Injection Dump Septum rough aligned.
- Two injection area short kickers aligned.
- Doublet QVA12/QHA13 alignment adjusted (quads individually, aligning the entire raft rendered insufficient accuracy).
- DS Injection area short kicker aligned.
- DS Injection area long kicker aligned.
- US Injection area short kicker aligned.
- US Injection area long kicker aligned.
- Prepared data and set out 120 bolt holes for component intermediate stands.
- Prepared data for 48 additional diagnostic stand bolts holes which will be set out soon.

Mechanical

- This week we assembled and sent to the RTBT two 21Q40 assemblies.
- We are assembling another RTBT Quad/Corrector/Beampipe.
- By the end of the day we will finish mapping all 27CD30 correctors, a total of 16.

Ring Systems Installation

- The HEBT 12Q45 magnets QV23 and QH24 were modified and reinstalled.
- The Injection SS dump septum magnet was installed.
- The Injection SS magnets' alignment was completed.
- The Primary Collimator shielding installation was started.
- The Extraction SS Kicker #1 was assembled and set on its stand.
- The BIG and QMM diagnostic support stands were assembled.
- The RTBT Bend Magnet 17D224 was received and staged.
- The RTBT 21Q40 magnets QH10 and QV09 were assembled and delivered to the RING.

Water Systems Installation

- Installation of the Ring arc magnet cooling is complete and flushing is in process.
- Installation of the Ring Injection SS kicker magnets cooling connections continues.
- Installation of the Ring Collimator remote cooling connections was started.
- Fabrication of the RTBT Collimator Closed loop system continued.

Electrical Group

- Completed integrated magnet/power supply/controls testing for SCL warm section 23, bringing the completed warm section integrated magnet/power supply/controls tests to 31 of 34.

- In the Ring, Extraction kicker cabling 40% complete. Started main dipole bus connections, injection magnet chicane bus installation. Controls wiring, ac power wiring, and magnet terminations in progress.
- In the RTBT, rack installation in progress. Continuing with ac installation and corrector magnet cabling.

HPRF

- CCL4 RF System is back in service after arcing at the klystron window output. New seals and a Kapton window were installed and tightened to specification. X-Ray and RF survey was satisfactory. Power was tested up to 2.7 MW into the CCL4 structure.
- SCRF transmitters 21 & 22 (the last two of fourteen) are undergoing startup checks. Waveguide shorts have been installed in the tunnel in preparation for high power tests.

LLRF

Cryo Group

- Turned on for the first time CM 18, 19, and 20. The cavities are being run and the coupler conditioned and their final limits will be determined soon.
- CM12 sowed excess radiation and a near maximum gradient run was performed over the weekend, which showed total integrated doses as high as 1kR on contact of the cryomodule vacuum tank over a 30 hours period.
- Limits of all the available cavities were further investigated. Gradients as high as 24 MV/m were observed. The average of the maximum gradients for the medium beta cavities is 17.4 MV/m (design is 10.1MV/m) and for the high beta cavities tested so far is 18.2 MV/m (design is 15.6 MV/m).
- Cooled down CM21, controlling at 90% liquid level
- Stabbed CM22, will be cooled down next Monday
- Complete repair CM2 will be moved back into the linac next Tuesday

Controls

The control system was plagued with troubles in two areas this week. A new version f the low-level RF software did not work reliably, and after two evenings when running had to be canceled, the software was “rolled back” to an earlier version, sacrificing certain new features but providing reliable operation. Occasional “drop-outs” of insulation vacuum readings led to an intense debugging effort that benefited from contacts made at last week’s EPICS collaboration meeting. By the end of the week a revised version of a suspect serial software driver was running under test with promising results.

An initial cost estimate was prepared for the Power Upgrade Project.

Work proceeded on the database crawlers and useful reports are now being generated.

The ICS Network was started up this week in the Target Building in support of Target process controls loop testing. Two target control IOCs and several associated PLCs were successfully started. Templates are available that will speed up this process for future IOCs. All PLCs are entered in the Oracle Database. A discussion was started with ACE Controls on how to integrate the Moderator control system.

Work continued on developing timing master support for the LEBT chopper, including the addition of waveform support in the real-time data link. Meanwhile the “next-generation” LEBT chopper board nears completion, including initial parts placement and coordination with a possible fabrication vendor.

Beam Diagnostics